



Contribution ID: 87

Type: Talk

Mildly obscured active galaxies and the diffuse X-ray background

Sunday 6 December 2015 18:00 (20 minutes)

The diffuse cosmic X-ray background¹ (CXB) is the sum of the emission of discrete sources, mostly massive black-holes accreting matter in active galactic nuclei (AGN)². The CXB spectrum differs from the integration of the spectra of individual sources, calling for a large population, undetected so far, of strongly obscured Compton thick AGN³. Such objects are predicted by unified models⁴, which attribute most of the AGN diversity to their inclination on the line of sight, and play an important role for the understanding of the growth of black holes⁵ in the early Universe. The fraction of obscured AGN at low redshift can be derived from the observed CXB spectrum assuming AGN spectral templates and luminosity functions. Here we show that high signal-to-noise average hard X-ray spectra, derived from more than a billion seconds of effective exposure with the Swift/BAT instrument⁶, imply that mildly obscured Compton thin AGN feature a strong reflection and contribute massively to the CXB. A population of Compton thick AGN larger than that effectively observed is not required, as no more than 8% of the CXB flux can be attributed to them. Stronger reflection in mildly obscured AGN suggests that the covering fraction of the gas and dust surrounding their central engines is a key factor in shaping their appearance. These mildly obscured AGN are easier to study at high redshift than Compton thick sources.

Author: ESPOSITO, Valentino

Co-author: WALTER, Roland (University of Geneva)

Presenter: ESPOSITO, Valentino

Session Classification: 16 - Black holes